

REMARKS

Claims 1-34 are pending in the application. Claims 32 and 33 stand withdrawn as being drawn to a non-elected invention. Claims 1, 9, 30, 31, and 34 have been amended. Support for the new claims and claim amendments can be found throughout the application as originally filed, including the claims. Importantly, no new matter has been added. Applicants reserve the right to pursue the amended or withdrawn subject matter in a continuing application under 35 U.S.C. § 120 or 121.

Rejections Under 35 U.S.C. § 101

Claims 1-31 and 34 stand rejected under 35 U.S.C. § 101 based on the Examiner's contention that they are directed to non-statutory subject matter. Applicants respectfully disagree with this rejection.

The Examiner, citing the Supreme Court, states that “[a] claimed process is patent-eligible under § 101 if: (1) it is tied to a particular machine or apparatus, or (2) it transforms a particular article into a different state or thing.” The Examiner then states that “[m]oreover, there is no physical transformation because a process of mathematical modeling does not transform an article or physical subject to a different state or thing.” Applicants submit that the Examiner's rejection is not in line with current law as promulgated by *In re Bilski*, 545 F.3d 943 (Fed. Cir. 2008).

Applicants submit that the Examiner incorrectly required a *physical* transformation and limited the meaning of *article*. *In re Bilski* addressed these points: “[b]ut the main aspect of the transformation test that requires clarification here is what sorts of things constitute ‘articles’ such that their transformation is sufficient to impart patent-eligibility under § 101.” *Bilski*, 545 3d. at 962. *In re Bilski* clarified that “articles” includes electronic data:

“We further note for clarity that the electronic transformation of the data itself into a visual depiction in *Abele* was sufficient; the claim was not required to involve any transformation of the underlying physical object that the data represented.”

Bilski, 545 3d. at 963.

Bilski distinguished between a patent-ineligible claim and a patent-eligible claim in *In re Abele*, 684 F.2d 902 (CCPA 1982) which is illustrative of the present application. *In re Abele* involved claims reciting a process of graphically displaying variances of data from average values:

“There, we held unpatentable a broad independent claim reciting a process of graphically displaying variances of data from average values. *Abele*, 684 F.2d at 909. That claim did not specify any particular type or nature of data; nor did it specify how or from where the data was obtained or what the data represented. *Id.*; see also *In re Meyer*, 688 F.2d 789, 792-93 (CCPA 1982) (process claim involving undefined ‘complex system’ and indeterminant ‘factors’ drawn from unspecified ‘testing’ not patent-eligible). In contrast, we held one of *Abele*’s dependent claims to be drawn to patent-eligible subject matter where it specified that ‘said data is X-ray attenuation data produced in a two dimensional field by a computed tomography scanner.’ *Abele*, 684 F.2d at 908-09. This data clearly represented physical and tangible object, namely the structure of bones, organs, and other body tissues. Thus, the transformation of that raw data into a particular visual depiction of a physical object on a display was sufficient to render that more narrowly-claimed process patent-eligible.”

Bilski, 545 3d. at 962-963.

As in *Abele*, where claims specifying the source of the data were patent-eligible, present claim 1, as amended, specifies the source of the structural data as either from X-ray crystallography or NMR spectroscopy. Support for the claim amendments can be found on page 8 of specification, lines 29-30, and continued onto page 9, lines 1-5.

As in *Abele*, where data represented physical and tangible objects, structural data used herein to provide the models represent spatial arrangements of atoms in potential ligands and macromolecular targets. *Applicants submit that macromolecules and ligands are physical objects, no different than bones, organs and other body tissues, just smaller.*

The mathematical manipulation of data *per se*, which is to say numbers devoid of physical significance, has not been deemed a transformation. However, this is not the case in the present invention where the structural data has physical significance because it represents interaction between macromolecules and ligands.

Because the Supreme Court's physical transformation test for patent-eligible subject matter applies to electronic data having physical significance, Applicants submit that claims 1-31 and 34 are drawn to patent-eligible subject matter. Also, in accordance with *In re Bilski*, the present claims have been amended to specify the source of structural information, further qualifying them as patent-eligible. Accordingly, Applicants request the withdrawal of the rejection of claims 1-31 and 34 under 35 U.S.C. § 101.

Rejections Under 35 U.S.C. § 112, Second Paragraph

Claims 1-31 and 34 stand rejected under 35 U.S.C. § 112, second paragraph, based on the Examiner's contention that they fail to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. In particular, the Examiner contends that the term "homologous" is a relative term that renders the claims indefinite. The Examiner also contends that the term "the cyclic portions" in claim 9, and the term "the compound" in claim 34 lack antecedent basis. Applicants respectfully disagree with this rejection.

Applicants have amended independent claims 1, 30, and 31 to further define the term "homologous" to be 20% or greater nucleic acid and/or amino acid homology. Support for the amendments can be found on page 2 of the specification, lines 26-28. Applicants submit that one of ordinary skill in the art knows the metes and bounds of a percentage limitation when comparing the nucleic acid and/or amino acid homology of a macromolecule and ligand.

Applicants have amended claim 9 to clarify the terms of the claim. Support for the claim amendment can be found on page 13 of the specification, lines 23-27, and Figure 2. Applicants submit that the term "the cyclic portions" has antecedent basis in claim 9 as amended.

Applicants have amended claim 34 to replace the term "the compound" with "ligand of step a)" to clarify that a comparison is being made between a ligand and test ligand. Support for the claim amendment can be found on page 13 of the specification, lines 29-30. Applicants

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Application No.: 10/781,015

submit that removal of the term “the compound” renders claim 34 definite.

Applicants submit that claims 1-31 and 34, as amended, are definite and request the withdrawal of the rejection of claims 1-31 and 34 under 35 U.S.C. § 112, second paragraph.

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Fees

The Director is hereby authorized to charge any additional fee due, or credit any overpayment, in connection with this petition, to Deposit Account No. 50-0725.

Conclusion

Applicants request that the Examiner enter the above amendments, and allow the pending claims to pass to issue. If a call to Applicants' representative would help to expedite the prosecution of this application, the Examiner is encouraged to contact the undersigned.

Respectfully submitted,

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